

## Changes to Inflation Adjustments in the COMET Model

As part of the revision of COMET (Version 1.1), we will make significant changes to the way in which COMET handles inflation adjustments. This paper summarizes the proposed changes. In order to effect the changes, we must modify user screens and the underlying databases.

In the current version of COMET, project years are simply denoted *Year 1*, *Year 2*, ..., *Year n*. In Version 1.1:

- *Cost Year* (YYYY) denotes the FY of the costs in the cost files (currently FY 1997)
- *Start Year* (YYYY) denotes the FY for the first year in the Life Cycle of a project (currently Year 1)
- *Base Year* (YYYY) denotes the FY to which constant-dollar cost estimates are adjusted
- *Then-Year Costs* implies the application of inflation rates across the project life cycle
- *Constant-FY Costs* implies constant cost estimates in Base-Year dollars.

The Cost Year is set in the cost database and never edited by the user. It only needs to be updated when the cost files are updated. Base Year and Start Year are either user-set or a program-provided default.

### Changes to the Databases

We will add a table to the existing COMET databases *ACT\_DATA\_STOR.mdb*, *RES\_DATA\_STOR.mdb* and *CIV\_DATA\_STOR.mdb* to include the inflation indexes promulgated by NCCA. Table 1 summarizes the layout of the new table.

**Table 1. Proposed Layout for Inflation Rate Table**

Variable	Description	Format
FY	Fiscal Year	YYYY
MPN_Rate	MP,N Annual Inflation Rate	Double
MPN_Raw_Index	MP,N Raw Inflation Index	Double
MPN_Wgt_Index	MP,N Weighted Inflation Index	Double
OMN_Rate	O&M,N Annual Inflation Rate	Double
OMN_Raw_Index	O&M,N Raw Inflation Index	Double
OMN_Wgt_Index	O&M,N Weighted Inflation Index	Double
CivPay_Rate	Civilian Pay Annual Inflation Rate	Double
CivPay_Raw_Index	Civilian Pay Raw Inflation Index	Double
CivPay_Wgt_Index	Civilian Pay Weighted Inflation Index	Double
Other_Rate	Other Cost Annual Inflation Rate (CPI-U)	Double
Other_Raw_Index	Other Cost Raw Inflation Index (CPI-U)	Double
Other_Wgt_Index	Other Cost Weighted Inflation Index (CPI-U)	Double

The inflation data will come from the NCCA inflation tables. MPN rates will be based on the MPN (Composite) index, O&MN rates on the O&MN (Composite) Less Fuel index and Civilian

Pay on the CIV PAY index. Other categories include GI Bill and OSD-financed health-care expenses, which will be adjusted using the CPI-U. Changes in Reserve pay elements will use the MPN index. The initial set of values is displayed in the Appendix.

The Annual Inflation Rates stored in this table are obtained using the following calculation:

$$AIR_i = \left( \frac{WI_i}{WI_{i-1}} - 1 \right) * 100,$$

where  $AIR_i$  is the inflation rate for year  $i$  and  $WI$  is the Weighted Inflation Index.

Other database changes will also be necessary. First, a field denoting *Cost Year* must be added to every cost file (\*.fen and \*.fof). Also, we will reorganize the project data organization. Currently, COMET uses a database called Projects.mdb to store project data. It contains a table listing all projects and a separate table for each project to contain the project parameters. In Version 1.1, Projects.mdb will no longer be necessary. Instead, a table called 'Projects' will be added to ACT\_DATA\_STOR.mdb, RES\_DATA\_STOR.mdb and CIV\_DATA\_STOR.mdb. As part of the restructuring, new fields will be added to each project record to accommodate the new inflation methodology.<sup>1</sup>

## Changes to View Costs

The first change that users will see occurs on the view enlisted/officer costs screen. Added to these screens will be a display showing the current base year for displayed costs. The first time that a user opens either view cost option during a COMET session, the View Cost *Base Year* will be set to the *Cost Year* in the underlying database (e.g., FY 1997). The user may reset the Base Year using a dropdown box. The Base Year for viewing costs will remain at the user-specified value for the remainder of the session (or until the user changes it).

When the Base Year differs from the Cost Year, COMET will recalculate all costs for display, printing and export. At no time, however, will changing the Base Year cause the cost figures in the cost file to be modified. This change will always occur upon display or output.

The adjustment from *Cost Year* to *Base Year* will be based on the raw index for the *Cost Year* and the weighted index for the *Base Year*:

$$Cost_{BaseYear} = Cost_{CostYear} \cdot \frac{WI_{BaseYear}}{RI_{CostYear}}.$$

Figure 1 shows what the View Enlisted Cost screen will look like when this change is implemented.<sup>2</sup>

<sup>1</sup> Changes to the database structure imply that Version 1.0 data will not be fully compatible with Version 1.1. We will handle all updates with automatic procedures that will check for "old" data on startup; the user will be prompted to update the data. After updating (writing the data to the new format), the old data files may be deleted or archived at the user's discretion.

<sup>2</sup> We will be making further changes to the display on this screen (specifically in the display of detailed cost elements).

**View Enlisted Database**

DATABASE: DEFAULT.FEN      RATING: ZZZZZ ALL NAVY

Type of Cost	E1-3	E4	E5	E6	E7	E8	E9
<b>Final Cost From DEFAULT.FEN</b>							
<b>Direct Cost</b>							
MPN	28080.38	36907.98	44511.46	52767.26	61049.33	70553.63	83968.46
Other (non-Navy)	1010.66	1010.66	1010.66	1010.66	1010.66	1010.66	1010.66
Sub Total (Direct)	29091.05	37918.64	45522.13	53777.93	62060.00	71564.29	84979.13
<b>Variable Indirect Cost</b>							
MPN	25453.85	25453.85	25453.85	25453.85	25453.85	25453.85	25453.85
OMN	5564.15	5564.15	5564.15	5564.15	5564.15	5564.15	5564.15
Other (non-Navy)	5146.72	2682.03	2496.96	2485.42	2445.90	2517.89	3090.85
Sub Total (Var. Indirect)	36164.72	33700.03	33514.95	33503.41	33463.89	33535.89	34108.85
<b>TOTALS</b>	<b>65255.77</b>	<b>71618.67</b>	<b>79037.08</b>	<b>87281.34</b>	<b>95523.89</b>	<b>105100.20</b>	<b>119088.00</b>

**Costs are in Constant FY 1999 \$**

**DIRECT COSTS**

<b>MPN Military Compensation</b>							
ac_mc	20050.03	24665.09	29840.74	35399.95	40535.43	46430.83	54763.24
user_VHA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>MPN Enlistment Bonus</b>							
ac_eb	258.29	258.29	258.29	258.29	258.29	258.29	258.29
am_ac_eb	46.93	46.93	46.93	46.93	46.93	46.93	46.93
am_mc_eb	1239.75	1239.75	1239.75	1239.75	1239.75	1239.75	1239.75
user_EB	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>MPN Reenlistment Bonus</b>							

**Figure 1. Modified View Cost Screen**

## Changes to Run LCC

The inflation changes will also affect the *Run LCC* screen and the calculation process underlying it. Each project will now have a *Base Year* and a *Start Year* associated with it. Note that this *Base Year* may differ from the *Base Year* used to view costs. The *Start Year* becomes Year 1 in the project life cycle. If, for example, a project uses *Start Year* FY 2000 and the underlying cost file Cost Years are FY 1997, the initial costs for Year 1 will be adjusted upward to reflect the change in price levels between FY 1997 and FY 2000.

Users will also have some additional options on the *Run LCC* screen. First, the user will be able to choose between results in *Constant-Year* dollars and results in *Then-Year* dollars. Inflation scenarios will only be applied in the latter case.<sup>3</sup>

If the user wants *Then-Year* costs, he or she may either use the inflation table figures or user-supplied inflation rates (i.e., the current method) for inflating out-year costs. If NCCA rates are chosen, the LCC screen will display the appropriate annual inflation rates. In both cases, the

<sup>3</sup> When the user chooses Constant FY Dollars, costs are adjusted from *Cost Year* to *Base Year*. When the user chooses *Then Year* Dollars, costs are adjusted from *Cost Year* to *Start Year*. In the former case (constant costs), *Start Year* only affects output display (Year 1 = *Start Year*, Year 2 = *Start Year* + 1, ...); if then-year costs are used, *Base Year* has no effect on output.

Year 1 inflation parameters disappear, since Year-1 inflation is the adjustment from *Cost Year* to *Start Year*. All inflation rates are constant from Year 5 out.

The final change in this portion of the program is that the year display on view screens and on LCC output will change from a Year 1, Year 2,..., Year n convention to a *Start Year*, (*Start Year* + 1),..., (*Start Year* + n - 1) display (e.g., FY 1999, FY 2000,..., FY 2028).

Figure 2 shows what the *Run LCC* screen will look like when it incorporates the changes.

**COMET (Active Component)...**

File Data Edit LCC Help

Costs In:  
☐ Then Year Dollars  
☒ Constant FY Dollars

Inflation Rates:  
☐ NCCA Rates  
☒ User Select

Inflation	2002	2003	2004	2005	2006+
MPN	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
OMN	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
Other	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %

Base Year: 1999  
 Start Year: 2002  
 Duration of Analysis (yrs): 1  
 Discount Rates (%): 5.00

Project Files: COMBAT  
 System Platform: COMBATDIV.REQ  
 Enlisted Final Cost Files: DEFAULT.FEN  
 Officer Final Cost Files: DEFAULT.FOF

SAVE  
 RUN  
 VIEW  
 QUIT

	Undiscounted	Discounted
<b>Direct Costs</b>		
MPN	0.00	0.00
Other	0.00	0.00
sub total (Direct)	0.00	0.00
<b>Variable Indirect Costs</b>		
MPN	0.00	0.00
OMN	0.00	0.00
Other	0.00	0.00
sub total (Var. Indirect)	0.00	0.00
<b>TOTAL</b>	<b>0.00</b>	<b>0.00</b>

(numbers are expressed in \$K)

Status 99/01/06 5:00 PM

**Figure 2. Modified *Run LCC* Screen**

Because the set of parameters associated with a project will change, we will also modify the *Delta Analysis* screen. In Version 1.1, if the user selects the *Rates* view, the screen will display all of the settings for both projects, as shown in Figure 3.

**Delta Analysis**

Inflation Rates:	2011	2012	2013	2014	2015+
MPN	3.00	3.00	3.00	3.00	3.00
OMN	3.00	3.00	3.00	3.00	3.00
Other	3.00	3.00	3.00	3.00	3.00

Discount Rate: 5.00      Cost In: Then Year Dollars  
File : MIKE2      User Selected Inflation Rates

Costs      Select Base Project      Select Alternative Project      Quit

MIKE2      MIKE

Base Year: 2011      Base Year: 2006

Inflation Rates:	2006	2007	2008	2009	2010+
MPN	1.30	1.34	1.38	1.42	1.47
OMN	1.24	1.27	1.30	1.33	1.37
Other	1.30	1.34	1.38	1.42	1.47

Discount Rate: 5.00      Cost In: Then Year Dollars  
File : MIKE      NCCA Inflation Rates

**Figure 3. Modified *Delta Analysis* Screen**

### Appendix: Inflation Table Data

Fiscal Year	MPN			OMN			CivPay			Other (CPI-U)		
	Rate	Raw Index	Wgt Index	Rate	Raw Index	Wgt Index	Rate	Raw Index	Wgt Index	Rate	Raw Index	Wgt Index
1990	3.87	0.77	0.77	3.84	0.80	0.81	3.73	0.78	0.78	5.40	130.66	130.66
1991	3.81	0.80	0.80	3.53	0.83	0.84	3.98	0.81	0.81	4.23	136.19	136.19
1992	4.02	0.83	0.83	3.20	0.86	0.87	4.18	0.85	0.85	3.03	140.32	140.32
1993	3.73	0.86	0.86	2.81	0.89	0.89	3.81	0.88	0.88	2.95	144.46	144.46
1994	2.65	0.88	0.88	1.53	0.90	0.91	0.90	0.89	0.89	2.61	148.23	148.23
1995	2.22	0.90	0.90	1.80	0.92	0.92	1.50	0.90	0.90	2.81	152.38	152.38
1996	2.40	0.92	0.92	1.89	0.94	0.94	2.00	0.92	0.92	2.93	156.85	156.85
1997	2.73	0.95	0.95	2.12	0.96	0.96	2.75	0.94	0.94	2.34	160.52	160.52
1998	2.57	0.97	0.97	2.06	0.98	0.98	2.85	0.97	0.97	2.70	164.85	164.85
1999	2.87	1.00	1.00	2.29	1.00	1.00	3.03	1.00	1.00	2.70	169.30	169.30
2000	2.89	1.03	1.03	2.28	1.02	1.03	3.02	1.03	1.03	2.70	173.87	173.87
2001	2.90	1.06	1.06	2.32	1.05	1.05	3.00	1.06	1.06	2.70	178.57	178.57
2002	2.91	1.09	1.09	2.35	1.07	1.08	3.00	1.09	1.09	2.70	183.39	183.39
2003	2.90	1.12	1.12	2.42	1.10	1.10	3.00	1.13	1.13	2.70	188.34	188.34
2004	2.94	1.15	1.15	2.59	1.12	1.13	3.00	1.16	1.16	2.70	193.43	193.43
2005	2.94	1.19	1.19	2.58	1.15	1.16	3.00	1.19	1.19	2.70	198.65	198.65
2006	2.94	1.22	1.22	2.59	1.18	1.19	3.00	1.23	1.23	2.70	204.01	204.01
2007	2.94	1.26	1.26	2.59	1.21	1.22	3.00	1.27	1.27	2.70	209.52	209.52
2008	2.94	1.30	1.30	2.59	1.25	1.25	3.00	1.31	1.31	2.70	215.18	215.18
2009	2.95	1.33	1.33	2.60	1.28	1.28	3.00	1.34	1.34	2.70	220.99	220.99
2010	2.94	1.37	1.37	2.59	1.31	1.32	3.00	1.38	1.38	2.70	226.95	226.95
2011	2.94	1.41	1.41	2.60	1.34	1.35	3.00	1.43	1.43	2.70	233.08	233.08
2012	2.94	1.46	1.46	2.60	1.38	1.39	3.00	1.47	1.47	2.70	239.37	239.37
2013	2.95	1.50	1.50	2.60	1.42	1.42	3.00	1.51	1.51	2.70	245.84	245.84
2014	2.94	1.54	1.54	2.60	1.45	1.46	3.00	1.56	1.56	2.70	252.47	252.47
2015	2.94	1.59	1.59	2.61	1.49	1.50	3.00	1.61	1.61	2.70	259.29	259.29
2016	2.94	1.63	1.63	2.60	1.53	1.54	3.00	1.65	1.65	2.70	266.29	266.29
2017	2.95	1.68	1.68	2.60	1.57	1.58	3.00	1.70	1.70	2.70	273.48	273.48
2018	2.94	1.73	1.73	2.61	1.61	1.62	3.00	1.75	1.75	2.70	280.87	280.87
2019	2.95	1.78	1.78	2.61	1.65	1.66	3.00	1.81	1.81	2.70	288.45	288.45
2020	2.94	1.84	1.84	2.61	1.70	1.70	3.00	1.86	1.86	2.70	296.24	296.24
2021	2.95	1.89	1.89	2.61	1.74	1.75	3.00	1.92	1.92	2.70	304.24	304.24
2022	2.95	1.95	1.95	2.61	1.79	1.79	3.00	1.97	1.97	2.70	312.45	312.45
2023	2.94	2.00	2.00	2.62	1.83	1.84	3.00	2.03	2.03	2.70	320.89	320.89
2024	2.95	2.06	2.06	2.61	1.88	1.89	3.00	2.09	2.09	2.70	329.55	329.55